

HEMICRICONEMOIDES MANGIFERAE SIDDIQI 1961

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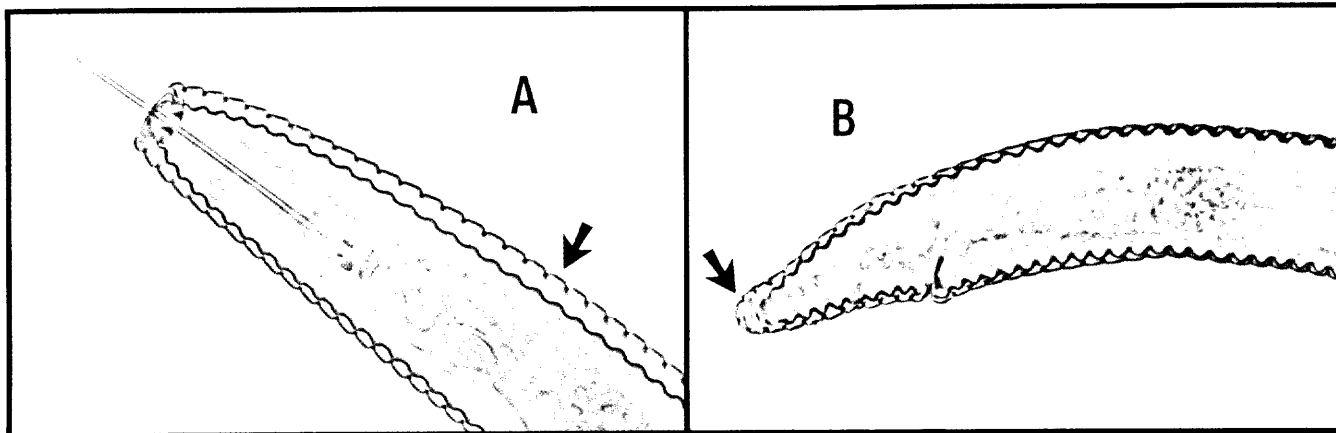


Fig. 1. Hemicriconemoides mangiferae showing unshed cuticle at head (A) and tail (B).

Hemicriconemoides mangiferae Siddiqi 1961 is one of the smallest plant parasitic nematodes. The generic group is characterized in part by having a close fitting, transparent sheath which is closely appressed to the nematode's inner cuticle (2,4,5). This sheath is an unshed cuticle (Fig. 1). Hemicriconemoides mangiferae, originally described as a parasite of mango roots from India, is believed to be nearly cosmopolitan in warm areas of the world (13,14). It is regarded as an important parasite of tropical and subtropical fruits and is widely distributed in mango groves in south Florida (5,8,14). It is considered to be one of the major pests of mango and litchi (6,7,8,9). Worldwide, it is one of the most widely reported nematodes of mango and is associated with root damage and tree decline. An inoculation study has shown it to be pathogenic to mango at a rate of six nematodes per cm³ of soil (6,7). Although H. mangiferae is generally considered to be an ectoparasitic nematode, it has been observed wholly inside the roots of both mango and litchi (14). Litchi is considered to be one of the most disease free of all fruit trees; however, 40% of the litchi trees in some orchards of Natal and eastern Transvaal in South Africa have been killed while infected by H. mangiferae and Xiphinema brevicolle (11,14). An additional 35% of the trees in the affected orchards were in decline. Of the two nematodes most commonly found in the declining orchards, H. mangiferae is believed to be the principal causal agent of litchi tree decline (7,11).

PATHOLOGY AND SYMPTOMS: In litchi trees, the whole body of the nematode becomes embedded in the root cortex (10), and after the nematode penetrates the roots, the cortex may slough. As a result of nematode feeding and movement within the roots, the affected tissue becomes necrotic due to the removal of cell contents and cell wall destruction (14). Infected roots may develop irregular adventitious roots which have a "stubby-root" appearance (7,10,11,14). Tree decline is believed to be brought about by the interruption of nutrient and water uptake resulting from root destruction (11,14). Older infected litchi trees may exhibit many bare twigs and branches, leaf chlorosis, leaf tip burn, poor flowering, and excessive fruit drop (11).

GEOGRAPHICAL DISTRIBUTION: Hemicriconemoides mangiferae has been reported from Australia, Brazil, Egypt, Fiji, Ghana, India, Israel, Korea, Mexico, Nigeria, Pakistan, Philippines, South Africa (Natal and Transvaal), Sudan, Thailand, United States of America (California and Florida), Vietnam (Hanoi), Venezuela, and the West Indies (Dominica, Grenada, St. Lucia) (14,15). In Florida, it has been reported from Dade and Palm Beach counties (1).

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HOSTS: This nematode has been found in association with the following plants: Alnus sp. (alder), Ananas comosus (L.) Merrill (pineapple), Artocarpus heterophyllus Lam. (jackfruit), Arctostaphylos manzanita Parry (manzanita), Bambusa vulgaris Schrad. ex. J. C. Wendl. (bamboo), Cannabis sativa L. (Indian hemp), Capsicum frutescens L. (red pepper), Carica papaya L. (papaya), Citrus limon (L.) Burm. f. (lemon), Citrus X paradisi Macfady (grapefruit), Citrus reticulata Blanco (tangerine), Citrus sinensis (L.) Osbeck (sweet orange), Cocos nucifera L. (coconut), Euphoria longan (Lour.) Steud. (longan), Gossypium hirsutum L. (upland cotton), Grewia asiatica L., Hibiscus esculentus L. (okra), Litchi chinensis Sonn. (litchi), Mangifera indica L. (mango), Manilkara zapota (L.) Van Royen (sapodilla) Mimusops hexandra Roxb., Musa X paradisiaca L. var. sapientum Kuntze (banana), Phoenix dactylifera L. (date palm), Phyllanthus emblica L. (myrobalan), Piper aduncum L. (cow's foot), Piper nigrum L. (black pepper), Prunus armeniaca L. (apricot), Psidium guajava L. (guava), Quercus sp. (oak), Saccharum officinarum L. (sugarcane), Tamarindus indica L. (tamarind), Theobroma cacao L. (cocoa), Umbellularia californica (Hook & Arn.) Nutt. (California bay), Vitis vinifera L. (European wine grape), Zea mays L. (corn) (3,4,7,12,14).

SURVEY AND DETECTION: Observe mango and litchi trees for symptoms of general decline. Submit approximately one pint of soil and roots to a nematology laboratory.

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